Claims

1. A method for correlating the ability of a cell to bind IgA and cellular susceptibility to a disease, said method comprising:

identifying a FcαRI genotype of said cell;

quantifying IgA binding by said cell expressing said FcαRI genotype; and

comparing IgA binding by said cell and IgA binding by a second cell, said second cell expressing a second FcαRI genotype.

2. The method of claim 1 wherein said FcαRI genotype differs from said second FcαRI genotype by a point mutation.

3. The method of claim 2 wherein said point mutation is a silent mutation.

4. The method of claim 2 wherein said point mutation is a frame shift mutation.

5. The method of claim 2 wherein said point mutation is a missense mutation.

6. The method of claim 3 wherein said silent mutation is in codon 87 of said FcαRI genotype.

7. The method of claim 3 wherein said silent mutation is in codon 92 of said FcαRI genotype.

8. The method of claim 5 wherein said missense mutation is at codon 132 of said FcαRI genotype.

9. The method of claim 5 wherein said missense mutation is at codon 245 of said FcαRI genotype.

10. The method of claim 5 wherein said missense mutation is at codon 248 of said FcαRI genotype.

11. The method of claim 1 wherein said disease is selected from the group consisting of: periodontal disease, cancer, viral infection, bacterial infection, systemic lupus erythematosus, systemic vasculitis, IgA nephropathy, rheumatoid arthritis, systemic sclerosis, dermatomyositis, Hashimoto's thyroiditis, inflammatory bowel disease and Sjogren's syndrome.

12. The method of claim 1 wherein said cell is selected from the group consisting of: a neutrophil, a monocyte, a myeloid cell, and a mucus secreting cell.

13. A method for determining FcαRI alleles specific to an individual human, said method comprising: genotyping DNA encoding FcαRI for a polymorphism, said DNA being obtained from said individual human.

14. The method of claim 13 wherein said polymorphism affects IgA binding by a FcαRI receptor.

15. The method of claim 13 wherein said polymorphism affects signal transduction.

16. The method of claim 13 wherein said polymorphism is a single nucleotide polymorphism.

17. The method of claim 13 wherein said polymorphism is a microsatellite polymorphism.

18. The method of claim 13 wherein said polymorphism is a splice isoform.

19. The method of claim 13 wherein said polymorphism is in the glycosylation sites of FcαRI.

20. The method of claim 13 wherein genotyping utilizes PCR typing with a sequence specific primer for a polymorphic exon.

21. The method of claim 20 wherein said primer is selected from the group consisting of those shown in Example 4.

22. A method for correlating the ability of a cell to bind IgA, and cellular susceptibility to a disease, said method comprising:

identifying a FcαRI phenotype of said cell;

quantifying IgA binding by said cell; and

comparing IgA binding by said cell to that of a second cell, said second cell having a second phenotype FcαRI.

23. The method of claim 22 wherein identifying said FcαRI phenotype utilizes amino acid sequencing.

24. The method of claim 22 wherein identifying said FcαRI phenotype utilizes glycosylate characterization.

25. The method of claim 22 wherein identifying said FcαRI phenotype utilizes antibody binding.

26. A method of prognosticating a human immunoresponse to a disease, said method comprising:

establishing a correlation between a FcαRI genotype and clinical outcome of said disease;

genotyping a patient for FcαRI to yield a patient FcαRI genotype;

comparing said FcαRI genotype with said patient genotype; and

determining clinical outcome for said patient based on said patient genotype.

27. The method of claim 26 wherein genotyping utilizes PCR typing with a sequence specific primer for a polymorphic exon.

28. The method of claim 27 wherein said primer is selected from the group consisting of those shown in SEQ ID Nos. 1, 2, 3 and 4.

29. The method of claim 26 wherein genotyping comprises purifying FcαRI expressing cells from said patient; extracting nucleic acids from said cells; and determining whether the nucleic acid encodes a predetermined polymorphic FcαRI nucleic acid sequence.

30. The method of claim 29 wherein the nucleic acid is selected from the group consisting of: RNA and DNA.

31. The use of a single nucleotide polymorphism in a FcαRI genotype to identify individual susceptibility to a disease.

32. The use of claim 31 wherein said disease is selected from the group consisting of: periodontal disease, cancer, viral infection, bacterial infection, systemic lupus erythematosus, systemic vasculitis, IgA nephropathy, rheumatoid arthritis, systemic sclerosis, dermatomyositis, Hashimoto's thyroiditis, inflammatory bowel disease and Sjogren's syndrome.

33. The use of claim 31 wherein the single nucleotide polymorphism is at a codon selected from the group consisting of: 87, 92, 132, 245 and 248.

34. A commercial package comprising reagents for identifying single nucleotide polymorphisms in a FcαRI genotype or phenotype together with instructions for the use thereof as a test to identify individual susceptibility to a disease.

35. A reagent kit capable of performing the method according to claim 1 or 22 substantially as described herein in any of the examples.